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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,133	02/11/2005	Gotz Peter Schindler	13156-00005-US	2461
30678 7590 03/28/2008 CONNOLLY BOVE LODGE & HUTZ LLP 1875 EYE STREET, N.W. SUITE 1100 WASHINGTON, DC 20036				
EXAMINER				
BULLOCK, IN SUK C				
ART UNIT		PAPER NUMBER		
1797				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/524,133

Applicant(s)

SCHINDLER ET AL.

Examiner

In Suk Bullock

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

In response to the Amendment filed 1/4/2008, rejection of claims 1, 3, 10, and 11 under 102(b) is hereby withdrawn.

Amendment to claim 1 is acknowledged.

No claim has been canceled and no new claim has been added. Thus, claims 1-11 remain pending in this application.

The following rejection is maintained.

Maintained Rejection

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,187,985 to Le Peltier (hereinafter Le Peltier") in view of FR 2748021-A1 (hereinafter "FR").

Le Peltier discloses a process for dehydrogenating alkanes to the corresponding olefins in the presence of a catalyst comprising at least one support (i.e., alumina, zirconia), at least one metal from group VIII, at least element selected from germanium, tin, lead, rhenium, gallium, indium and thallium and at least one alkali or alkaline earth element. See col. 2, lines 1-23. Le Peltier, also, discloses carrying out the process in an isothermal tube reactor (col. 5, lines 65-67).

Le Peltier fails to disclose a catalytically inactive, inert diluent material.

The FR reference discloses an isothermal method for the catalytic oxidative dehydrogenation of paraffinic hydrocarbons (e.g., propane) to the corresponding monoolefins in the presence of a supported CrO_3 -based catalyst. The supported catalyst is present as particles of diameter 20 microns to 10 mm, which may be mixed

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with a diluent such as steatite or any other inert material of low surface area. The process is conducted in a tubular reactor. See the entire the English summary of the reference.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Le Peltier by employing a catalytically inactive, inert diluent material such as steatite because the use of steatite in the isothermal dehydrogenation process the diluent material reduces the formation of hot spots along the catalyst bed (page 6, lines 8-14).

It is acknowledged that FR does not disclose the specifically claimed diluent as called for in claim 2. However, since FR discloses any other inert material of low surface area may be employed in the process, it would have been obvious to one having ordinary skill in the art to have included any effective diluent which meets the requirements for a diluent material as disclosed by the reference including those listed in the claim.

The limitation of claim 4 is met by the FR reference disclosure of a low surface area.

Since the FR reference discloses steatite which is one of the claimed diluent, it is expected that the steatite in the reference would have similar thermal conductivity as called for in claim 5.

With regard to the space velocity as called for in claim 6, it would have been obvious to one having ordinary skilled in the art to have determined the most effective

space velocity through routine experimentation in the absence of a showing of criticality.

In re Woodruff, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

With regard to the limitations recited in claims 7 and 8 directed to the shape and size of the diluent and void fraction respectively, it is within the level of one having ordinary skill in the art to have determined the most effective shape and size and packing of the diluent in the catalyst bed which would lead to optimum process.

Response to Arguments

Applicant's arguments filed 1/4/2008 have been fully considered but they are not persuasive.

Applicant argues there is no motivation to combine Le Peltier with FR because "FR utilizes a chromium catalyst and runs at a much lower temperature (examples use 260-350°C) than that for the group VIII catalyst system of the claimed process and the process described in Le Peltier. (Examples in Le Peltier use 450-470°C)." The argument is not persuasive because FR discloses a temperature range of 250-450° C which overlaps with the claimed temperature of 400-700°C and Le Peltier's temperature disclosure in the range of 400-800° C. Overlapping ranges are prima facie evidence of obviousness. In re Malagari, 182 USPQ 549 (CCPA 1974).

It is noted that Applicant relies upon examples in the references to support his argument. The teachings of a reference are not limited to the examples therein but to the entire disclosure. Hence, the Examiner's position as stated above. Furthermore, it is known to those skilled in the art the process conditions of any reaction are dependent

upon various factors such as feed and catalyst. This is, also, evidenced in Le Peltier which explicitly discloses, "The operating conditions are adjusted depending on the feed to be treated, in known manner so as to obtain the best pressure-temperature-yield and activity match." See col. 5 lines 4-7.

Applicant, also, rely upon different catalyst system used by Le Peltier and FR to support his argument that there is no motivation to combine the references. The Examiner concedes that Le Peltier uses a catalyst system comprising at least one metal from group VIII while FR uses a chromium based catalyst. However, it noted that while chromium does not belong in group VIII it is a transition metal as are the metals of group VIII and, therefore, chromium would have similar characteristics as any one of the metals in group VIII. Therefore, one skilled in the art it would have been motivated to employ a catalytically inactive, inert diluent material disclosed by FR in the dehydrogenation process of Le Peltier with a reasonable expectation of reducing hot spots along the catalyst bed. Furthermore, the mechanism of reducing hot spots will be the same by use of an inert material in the catalyst bed as taught by FR notwithstanding the particular catalyst.

Applicant argue that "the references do not teach or suggest a process utilizing a group VIII metal catalyst where heat is introduced from outside into the reaction gas mixture by heating the reactor externally." The argument is not persuasive because the invention is drawn to a dehydrogenation process in which the temperature of the reactants and the catalyst bed must be within a certain range; the teaching of Le Peltier encompasses the claimed process. How the temperature of the reactants and catalyst

bed is maintained is immaterial. Moreover, Le Peltier discloses tubular reactor is maintained under isothermal conditions claimed by Applicants.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to In Suk Bullock whose telephone number is 571-272-5954. The examiner can normally be reached on Monday - Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/In Suk Bullock/
Primary Examiner, Art Unit 1797

/Glenn A Caldarola/
Acting SPE of Art Unit 1797